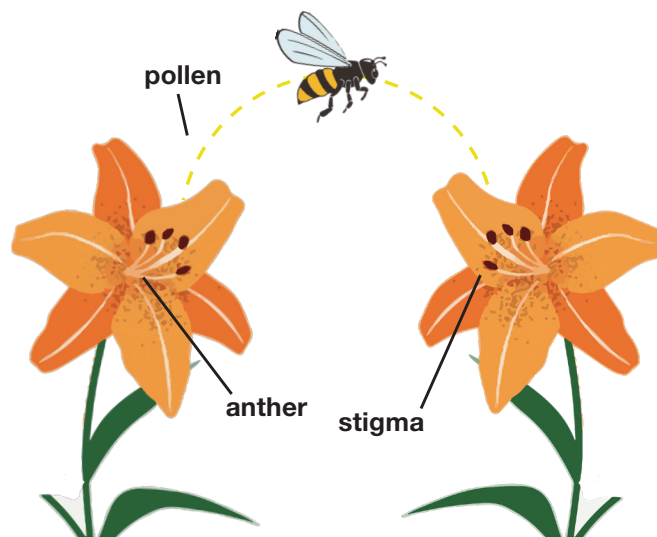


BEES

BEES PLAY AN ESSENTIAL ROLE IN FOOD PRODUCTION.

Plants worldwide depend on **pollinators** – insects, birds, and even bats – that move pollen from the male part of the flower (**anther**) to the female part of the flower (**stigma**). The transfer of pollen leads to **fertilization**, resulting in seed and fruit production.

Bees are Canada's most important pollinators. The fruits, vegetables and seeds we eat are the result of pollination. Other products of pollination include cooking oil from crops like canola and flax, alfalfa used to feed animals raised for meat, cotton for clothing production, a wide range of medicines – and so much more!



Canada is abuzz with bees.

There are 856 species of **native wild bees** in Canada, meaning they originated here.³ Examples of native wild bees include sweat bees, mining bees, carpenter bees and bumble bees.

Almost 3/4 of all the flowering plants in the world rely on pollinators for seed and fruit production.¹ In fact, one out of three bites of food we eat involves pollination.²



BEES & AGRICULTURE

Managed bees are bees that have at least some of their needs met by humans. Although native wild bees play an important role in pollinating crops, managed bees, including bumble bees, honey bees and alfalfa leafcutting bees, are particularly critical to Canadian agriculture.

Bumble bees

Bumble bees are among the most important pollinators of crops, especially fruit, berries, vegetables and some seed crops.⁴ Growers may rely on wild or managed bumble bees.

Managed bumble bees have become increasingly common in Canadian vegetable greenhouses for **supplemental pollination**. Tomatoes and sweet peppers are self-pollinating, but supplemental pollination results in larger, more attractive fruit. The hairy bodies of bumble bees allow them to collect and carry a lot of pollen, and they are capable of “buzz” pollination – vibrating the flower to release pollen.⁵

Honey bees

Honey bees were brought to North America by Europeans in the early 1600s⁶ for honey and wax. Honey bees have two very important roles in agriculture: honey production and crop pollination.

In Canada, farmers, ranchers, orchard growers and beekeepers work together. Beehives are placed near fields to increase pollination and the volume and quality of food grown. In turn, honeybees use crops like canola and clover as primary sources of nectar for their honey.



Beekeepers opening a hive

BEES

Alfalfa leafcutting bees

This species of leaf cutter bee was introduced to the prairie provinces from Europe in the 1960s to improve the pollination of commercially produced alfalfa crops.¹⁰ These bees, which build their nests with leaves, are used to pollinate alfalfa fields in Alberta, Saskatchewan, and Manitoba, as well as canola in Alberta and lowbush blueberries in Atlantic Canada.¹¹

80% of the honey produced in Canada comes from Alberta, Saskatchewan and Manitoba.⁷ However, about half of Canadian beekeepers are located in British Columbia (26.7%) and Ontario (24.2%).⁸



Bumble bee pollinating a flower



Honey bee

APICULTURE IS THE SCIENCE OF KEEPING BEES. Honey bees are social insects that live in family groups called **colonies**, enclosed in nests (**hives**) where the bees live and raise their young. In 2019 there were over 10,000 beekeepers or **apiculturists** in Canada operating more than 770,000 colonies.¹²

DYK? IT TAKES A WORKER HONEY BEE APPROXIMATELY **20 MILLION FORAGING TRIPS** TO GATHER ENOUGH NECTAR TO MAKE 1 KG OF HONEY.⁹

ARE BEE POPULATIONS DECLINING?

In Canada the number of managed honey bee colonies has increased thanks to the care of beekeepers.¹³ Research around the world, however, is showing disturbing declines in the populations of some species of native wild bees¹⁴ due to a combination of factors:¹⁵

- **Diseases** – There are increasing concerns about the transfer of diseases from managed to wild bees, especially viruses.
- **Exposure to pesticides** – While pesticides are intended to control insect pests, they can also harm beneficial insects like bees if not used according to instructions.
- **Reduced habitat due to human land use** – Pollinator habitats are decreasing. These include any areas that support pollinators by providing nectar and pollen resources, or overwintering and nesting sites.
- **Climate change and weather** – Native pollinators are vulnerable to climate change patterns, like inconsistent rainfall, heat waves and rising temperatures. These changes can alter the distribution and diversity of flower species that bees depend on.



Alfalfa leafcutting bee